We Claim:

1. A method for analysis or separation of a plurality of particles:

selecting a wavelength for illumination based upon an analysis of absorption spectra,

illuminating the particles with the selected wavelength,

considering response of particles to multiple wavelengths,

selecting wavelengths based on one or more desired parameters, and

illuminating the population to obtain optimized differential motion.

2. The method of claim 1 wherein the step of selecting the wavelength includes use of the spectral response.

3. The method of claim 2 where the selection of the wavelength is adjacent to a region comprising a local absorption maximum in the absorption spectra.

4. The method of claim 1 wherein the step of selecting the wavelength includes the use of empirical data.